Marla Sanchez

ER282, Paper 3

## INTRODUCTION

What is sustainability? For some, sustainability still means using resources efficiently. For architects, this means designing efficient buildings and planning 'cool' communities. Engineers design efficient motors and economists use market mechanisms to correct externalities. More recent work has demonstrated that it is possible to be efficient and still be unsustainable (Norgaard, 1995a). The inter-generational model is frequently cited as a rebuttal against economists' claims that policies to correct market failures will *solve* our environmental problems. More interesting to me is the criticism raised by this model (and more broadly by this class) against western ideology in general. This criticism is founded on the belief that Newtonianism helps create and perpetuate environmental problems. Solving environmental problems requires a fundamental shift away from Newtonianism by redefining values through moral discourse on a community level.

This criticism has large implications for the engineers and architects mentioned above who wish to merely tweak the system and make it work better. Sustainability means 1) not just more efficient motors, but questioning the entire production & industrial system 2) not just buildings with low-e argon windows, but addressing size, location and overall purpose.

## ENERGY EFFICIENCY AND THE ENVIRONMENT

I will be graduating in a month, so now seems a perfect time to reflect on how I, a professional in the environmental field, will contribute to building a more "sustainable" world. My career interests include energy efficiency and designing/supporting policies to promote emerging technologies. I chose this focus because I find it both interesting and important. In two years of work, I can identify several instances where I have contributed

to making *quantifiable* environmental improvements. The Energy Star program for TVs and VCRs is just one example where getting manufacturers to simply put a label on products meeting and/or exceeding a minimum efficiency requirement is expected to have a national effect equivalent (in carbon emissions) to removing about 80,000 cars from the road. When offering technological solutions to environmental problems I have found that people are apt to listen to you and occasionally even follow through with your recommendations. One reason the work is so rewarding is that there are tangible results associated with completing a project (personal communication, LBNL 1997).

If you believe that environmental problems are a result of a deeper crisis in Western thought, then my work, if a stand alone solution, becomes a "salt in the wound" scenario. Energy efficiency intensifies the crisis because it perpetuates two themes that have come under attack in this class: atomism and mechanism.

## ATOMISM

Atomism is the notion that individual parts of a system can be understood apart from the whole (Norgaard, 1995b). In the case of energy efficiency, I use the term atomism to refer to the belief that a large problem can be ameliorated through a myriad of individual solutions (energy efficiency being one), where each solution targets a single aspect of the problem. Resolution is simply the aggregated result of many problem solving approaches. I will use global warming for my example. Energy efficiency is frequently cited as a cost effective global warming policy for many industrialized nations (Krause et al, 1995). Energy efficiency is proposed as a technical solution to simultaneously reduce carbon emissions while allowing citizens to continue consuming at current levels.

It is well known that consumption/waste of wealthy nations is merely one aspect of the global warming problem. Other problem areas are managed by different disciplines and

have different tactical approaches; the foresters worry about timber harvest/deforestation, ecologists worry about loss of the biodiversity associated with deforestation, politicians/economists worry about poverty and land ownership patterns that cause indigenous people to cut down forests and sociologists worry about urban migration and the roots of modern materialism. No umbrella approach exists and many policies have negative feedbacks on others. The U.S. energy efficiency policy response has negative implications for the third world deforestation problem. In the case of the U.S., our policy response lacks any radical economic policy or behavioral changes. We simply develop new technologies that allow us to continue our life style. At the same time, we ask poorer countries to commit to major behavioral and economic changes (stop deforestation or China's possible future automobile stock) that they see as threatening to their own hopes of "progress".

## A STRETCHED DEFINITION OF MECHANISM

Reliance on energy efficiency contributes to a mechanistic world view. Mechanism is the idea that we can predict and control systems. In a mechanistic view, nothing in nature can surprise us (Norgaard, 1995b). I want to focus on our preoccupation with controlling systems (Dryzek, J. 1987). *In this section, I expand the definition of mechanism to make it include the idea that we can also predict and control our impact on the environment.*

The perceived ability to control is largely a function of the preeminence we give to our technical achievements. In other words, problems can always be 'engineered' away as long we believe that science will always have an answer. Energy efficiency reinforces this idea. Conservation, as a technical fix, allows society to believe that they can continue consuming because processes and products have become less energy intensive and therefore less environmentally destructive. Energy efficiency allows consumers to actually feel good about their materialist urges (example, I just bought my third TV. It was energy

star because I really care about the environment). If new high-efficiency technologies did not exist, people *may* be more apt to reflect on their behavior and its implications (or maybe just forced to face it); however, new technologies often make bad habits seems o.k. In conclusion, our continued reliance on technical solutions has let us believe that our effect on the environment has been controlled.

## AMORY LOVINS AND SUSTAINABILITY

One interesting idea raised by Amory Lovins is that the Hard and Soft Energy paths are fundamentally incompatible. Of course its theoretically possible to have both PV cells and coal fired power plants, but he argues that the two paths as technolgy systems cannot co-exist. The hard energy path requires large capital investments (especially now considering the age of most of the nations power plants), BIG systems, centralized systems and dependence on technocrats for engineering and planning. The hard path has little citizen participation. On the other hand, the soft energy path requires extensive decentralization, small scale energy systems, community organization, participation in planning and caring for local energy system and large initial capital investments (Lovins, A. 1989: Orr, D., 1979).

It is easy to see, based on system characteristics, that society cannot have both energy systems. Additionally, the further we travel down the Hard path, the less likely we are to be able to switch to the soft path. There are several reasons for this: capital to build new plants is diverted from building renewable systems, there are long-term system and financial commitments to hard energy systems (40 years for fossil plants only, hundreds for nuclear) and people become less and less likely to participate over time as sytems become more centralized. The point is that many argue that society has to chose: the hard path or the soft path.

How does energy efficiency fit into the Hard vs. Soft energy debate? Advocates of the Soft energy path believe that energy (also taken to be environmental) problems require solutions that dramatically alter current systems. Advocates of the Hard path see energy problems as largely a function of securing a cheap supply of energy over the long-term. Though this is totally a generalization, I think it can be argued that energy efficiency specialists fit more into the Hard energy path mind set.

Energy efficiency is not a radical change, it only seeks to make the current system more efficient. Energy efficiency is one way of prolonging a cheap supply of energy (the Negawatt idea--Amory Lovins). Efficiency experts are technocrats---mostly scientists or engineers with advanced degrees often from the same select universities. Efficiency is a huge government (Leviathan) solution with little citizen involvement. Finally, efficiency keeps society tied to the hard energy path because it convinces us that our first goal should be becoming as efficient as possible and this becomes our committed policy response instead of renewables. In the efficiency model, there is little value change. In fact, efficiency people believe energy waste is the problem as opposed to energy as a cultural or social problem (Orr, D. 1979). If one believes that the Hard Energy path over the long-term is not sustainable and that the Soft path is, then the energy efficiency approach is not going to result in a sustainable world.

## CONCLUSIONS

I have struggled with some of these implications of my work for some time, so I decided to take this class not to become a social scientist, but to become familiar with how different disciplines are tackling environmental problems and how social science solutions can maybe be incorporated into my own work. This will be the subject of paper 5.

WORKS CITED

Dryzek, J. 1987. Rational Ecology: Environment and Political Economy. Ch 3 and 4. Boston. Basil Blackwell.

Orr, D. 1979. "US Energy Policy and the Political Economy of Participation." Journal of Politics, 41(4): 1028-1056.

Lovins, A. 1982. "Perspectives on Energy". Issues, Ideas, and Environmental Dilemmas. Oxford University Press.

Norgaard, Richard. 1995a. Globalization and Unsustainability. Paper Presented at Sustainability Workshop in Terassa, Spain. December.

Norgaard, Richard. 1995b. Beyond Materialism: A coevolutionary Reinterpretation of the Environmental Crisis. Review of Social Economy (forthcoming).

Krause, F., D. Olivier, and J. Koomey. 1995. **Energy Policy in the Greenhouse. Volume II, Part 3B**. *Negawatt Power: The Cost and Potential of Low-Carbon Resource Options in Western Europe*. El Cerrito, CA: International Project for Sustainable Energy Paths.